

CIRRHOSIS OF THE STOMACH.

BY JOHN G. SHELDON, M.D.,

OF TELLURIDE, COLORADO,

Surgeon in Charge of the Miners' Union Hospital.

Mr. H. C., fifty-two years of age, came to me, December 1, 1902, complaining of severe pain in the abdomen, vomiting, and inability to eat or drink. His previous symptoms were as follows:

He was perfectly well until he reached his thirty-eighth year, fifteen years ago. From this time his symptoms can be divided, for description, into four periods. From the thirty-eighth to the forty-fifth years of his life he was troubled, at intervals, with "sourness of the stomach, occasional vomiting,—sometimes in the morning and oftentimes after meals; poor appetite part of the time, dull pain in the abdomen, belching of gas at intervals, and a coated tongue most of the time." These symptoms had slowly progressed in severity. Their inception was so gradual that the patient was unable to determine definitely the time that he first noticed them, but they gradually annoyed him more and more, so that when he was forty-five years of age he felt well only at short intervals.

During the next four years, from his forty-fifth to forty-ninth years, his symptoms were gradually becoming more severe, but he had continued to work on his farm. During these eleven years of suffering he had received no treatment, neither had he taken medicine of any kind.

During the last three years of his illness, he was unable to work on account of weakness and suffering. The pain in his abdomen was nearly always present. Usually it was a "dull, gnawing pain in the pit of his stomach," but sometimes he would have severe paroxysms of pain that would require morphine to relieve them. The pain was always in the median line of the abdomen above the umbilicus. It never seemed to be located in a small area, and never radiated. Ingestion of solids or liquids increased the severity of the pain. Vomiting sometimes, but not always, gave him partial but not complete relief. So far as he

knew, pressure on the abdomen did not diminish or increase his suffering.

Next to pain, vomiting was his most distressing symptom. He always vomited after eating solids, and frequently he was unable to retain liquids. Sometimes he would vomit immediately after eating; again, two or three hours would elapse before emesis occurred. He had frequently noticed that he would vomit food that he had eaten forty-eight hours previously. This puzzled him very much. He was at a loss to explain how he could vomit several times, and then, after ten or twelve hours had elapsed, succeed in bringing up material that had remained in his stomach during four or five previous attempts at vomiting. At no time had he ever vomited blood.

The symptoms that he complained of, other than pain and vomiting, were as follows:

His appetite was always good till the last year of his illness. During this time he was never hungry, and when he forced himself to eat, his food seemed without taste. At times he would crave certain articles of food. On one occasion he sent twenty miles for fresh onions, and when they came a taste of them was all he could eat.

His general condition remained fairly good, although he was progressively losing in weight and strength. His bowels were usually constipated but responded to cathartics. Copious evacuation of the bowels did not relieve the pain or vomiting. The treatment that the patient received during the last three years of his illness was as follows:

The first year was taken up with experiences with the local profession. The diagnosis was invariably chronic gastritis; and the internal administration of sodium bicarbonate and elixir of iron, quinine, and strychnine phosphates fairly represents the treatment. After trying these methods for one year, he went to one of the larger Western cities and consulted a "specialist." He remained in the city one month, having gastric lavage performed daily. After returning home he remained on a liquid diet for three months. During this time he felt better, but gradually the liquids gave him much distress and he could no longer retain them. He gave various patent remedies a trial for a few months, and then went to one of the larger Eastern cities for treatment. Here a diagnosis of gastric ulcer was made and

rectal feeding resorted to for three weeks. During this time he improved. He had very little pain, did not vomit, and seemed to gain in strength. He returned home believing that he would now get well. As soon as he began to eat, the old symptoms immediately returned. By this time the patient was very weak and considerably emaciated. He again applied to the local physicians for treatment, and it was through them that I saw him in consultation. At this time he vomited everything that he took into his stomach with the exception of small quantities of hot water.

Examination.—The patient was a well-developed but extremely wasted and anæmic man of fifty-two years. His skin was dry and somewhat darkened, but he was not jaundiced. Examination of the thoracic contents revealed nothing abnormal. The lungs showed only evidences of a chronic bronchitis. The heart was not enlarged or displaced. A systolic murmur was heard over the pulmonic area. The peripheral arteries were somewhat sclerosed. Otherwise, the circulatory system was normal. The abdomen was not distended or rigid. The epigastrium was tender on deep pressure. No masses or points of tenderness were found. Examination of the liver was negative. The spleen could not be palpated. Rectal examination revealed nothing abnormal. Examination of the lymphatic and nervous systems was negative. Gastric lavage was performed after giving a test meal. The result of the examination was as follows:

Acid reaction.

No hydrochloric acid found.

Organic acids present.

No Boas-Oppler bacilli found.

It was found that only a very small quantity of water could be passed into the stomach. When more than six or eight ounces were used, the patient would retch violently and expel it. Inflation of the stomach with carbon dioxide was quite puzzling to me. I had expected to find the organ dilated. But when the stomach was filled with gas its outline could not be determined by external examination.

Examination of the urine was negative. The blood examination was as follows:

Red cells, 2,800,000.

Leucocytes, 5800.

Hæmoglobin, 48 per cent.

Stained specimens showed a few nucleated reds, but no fragmentation of the cells was seen. The eosinophiles were not abnormally increased in number. The proportion of the polynuclear to the mononuclear leucocytes was normal.

A positive diagnosis was not made at this time. A stenosis of the pylorus seemed probable, but the absence of a dilated stomach made me cautious in making this diagnosis. Malignant disease was seriously considered. The examination of the stomach contents did not contradict this diagnosis, and a physical examination would not exclude diffuse carcinoma of the organ. The family history regarding malignant disease was negative. Rectal feeding was advised for a period of three weeks as a diagnostic aid and as preparatory treatment for operation. During this time the stomach was frequently washed out and its contents examined. The only variation noted by the examinations was the gradual diminution in the quantity of organic acids. When the patient took nothing by mouth, he was practically free from pain and did not vomit. He retained the nutrient enemas well, and gained strength while being nourished in this manner.

A probable diagnosis of benign stenosis of the pylorus was made and operation advised. On the 3d of January, 1903, the patient was given two ounces of castor oil. He retained this, and in a few hours had several evacuations of the bowels. The stomach was washed thoroughly with sterile water on the night of January 4, and the process repeated the next morning, at which time the operation was performed. Ether was used as an anæsthetic, preceded by one-quarter of a grain of morphine and one one-hundred-and-fiftieth of a grain of atropine given hypodermically. A median incision was made in the epigastrium. The stomach was not deformed, but was very small. It did not measure more than two inches in its greatest transverse diameter, nor more than six at its longest part. The external surface was smooth and no adhesions were present. The stomach appeared perfectly normal on its outer surfaces, but was extremely diminished in size. It felt firm, elastic, and resistant. It seemed to be of a uniform consistency, with the exception that the pylorus, and the portion of the stomach next to it, was more firm than the remainder of the organ. No enlargement was felt in the region of the pancreas. The gall-bladder was not distended, and no

solid masses could be detected by palpating it. The liver seemed normal. The appendix was brought into the wound, but showed no abnormal changes. The spleen was not examined. A gastro-enterostomy was done with a Murphy button. A transverse opening was made in the small intestine about sixteen inches from the point where the duodenum passes under the superior mesenteric artery. The opening in the stomach was made on the anterior surface, parallel to the smaller arteries of the stomach (that is, at right angles to the greater curvature) and in the very lowest part of the organ. The stomach wall was at least one centimetre in thickness. It cut with resistance, and the cut surface looked like fibrous tissue. So far as could be determined, the gastric mucosa was smooth and atrophic. The size of the pyloric opening could not be determined, but it must have been very small. The omentum was sutured to the stomach, over the anastomosis, with catgut. The abdominal wound was closed in layers with catgut and silkworm gut.

The operation was attended with little shock. The patient was propped up in bed as soon as he had recovered from the anaesthetic. Nothing was given by mouth for three days, then small sips of hot water were given at frequent intervals. After the twelfth day liquid food was given by mouth and borne by the patient without discomfort. The button was passed on the thirteenth day. On the eighteenth day the patient was allowed to eat solid foods. Since that time he has eaten everything and anything that he desired, and has experienced no trouble with his stomach in any way. He has never vomited since the operation was performed; neither has he suffered from pains or gaseous eructations as he formerly did. Three months after the operation was performed, he had gained thirty-six pounds in weight and felt well and strong. The patient tells me to-day (November 18, 1903) that he has worked on his farm all summer; that he has suffered none with his stomach; that he eats well and relishes his food, and that he weighs as much as he did when he was thirty years old.

From the history of this case, both before and since the operation was performed, I have come to the conclusion that this was a case of benign sclerosis of the stomach, and that the patient is free from malignant disease.

It has been a much discussed question whether a non-malignant cirrhosis of the stomach exists. I think that the preponderance of the evidence demonstrates to us clearly that while it may be at times difficult, or even impossible, to distinguish between a diffuse carcinoma of the stomach and a cirrhosis ventriculi, still, in rare instances, a benign cirrhosis of the stomach does occur. Andral,⁴ Cruveilhier,⁵ Brinton,⁶ Habershon,⁷ Wilks,⁸ and most of the earlier writers, have clearly drawn the distinction. The evidences on which their opinions are based, it must be admitted, were imperfect. However, the opinions of so many close clinical observers are not without their weight in this matter. Most of the recent writers give the condition recognition, but their statements are brief and in no way convincing. Einhorn¹ makes the positive statement that a benign cirrhosis of the stomach does occur. Osler² recognizes the condition and reports one characteristic case. Hemmeter³ states that the pylorus may be the seat of a hypertrophic stenosis, and that in rare instances the entire stomach may be involved in the hypertrophic process. Leith^{1a} recognizes the condition and discusses it at some length. He has observed one case, and mentions a case seen by Dr. Clifford Allbutt.

Most German writers contend that a diffuse benign cirrhosis of the stomach does not occur. They maintain that all of these cases are carcinomatous. Bret and Paviot⁹ share the same opinion with the Germans. They state that their opinion is based on the condition of the perigastric glands in their cases. They admit that no evidence of carcinoma was found in the stomach walls themselves, but in the same case the lymphatic glands gave evidences of cancerous involvement. I am unable to find a detailed report of their cases, neither do I know the number of cases they have reported.

G. B. Hunt reports a case of diffuse carcinoma of the stomach, and is of the opinion that cases of diffuse thickening and contraction of the organ are malignant. He does not refer to any proof for his belief with the exception of the report of one case.

I am of the opinion, from observing the case herewith reported and from examining the reports of others, that a benign diffuse cirrhosis of the stomach, though a rare condition, does occur. Of course, it is possible that a carcinomatous process may develop in a stomach already the seat of chronic cirrhotic changes; but, as will be seen from the pathology of the conditions, that will be discussed later, it is improbable that such a case has been recorded. Before discussing the condition in general, I shall give the reports of the cases that have been recorded.

CASE I.—*A Case of Extreme Contraction of the Stomach.* (W. B. Hadden, *Transactions of the Pathological Society*, 107, London, 1891.)

A woman, thirty years of age, suffered from epigastric pain and vomiting for ten months. During the last three months of her illness she was obliged to nourish herself with liquid food only, which she took very slowly. She was very weak and greatly emaciated. During the last month of her life she refused to take food of any kind, and during this period she vomited very little.

Post-mortem.—The stomach was tube-like in shape and was only four and one-half inches long. It is stated that its circumference measured only one inch. The stomach walls were one-half inch in thickness. The first two inches of the organ, joining the œsophagus, were roughened and ulcerated. The remainder of the lining of the stomach was smooth, white, and firm. Microscopical examination showed that the mucosa had disappeared. There was found great fibrous thickening of the submucosa. It is described as presenting an "open-textured" appearance that suggested œdema. The muscular and serous coats were described as being normal. No signs of malignancy were found, and no etiology for the condition could be determined.

CASE II.—*Fibrous Contraction with Hour-glass Stricture of the Stomach.* (F. C. Turner, *Transactions of the Pathological Society*, London, 1887.)

A man, sixty years old, suffered from dyspepsia for one month. Then vomiting occurred; he became greatly emaciated, and died at the end of three months.

Post-mortem.—A tight stricture was found two inches from the pylorus, which did not admit a glass rod about one-eighth of an inch in diameter. The stomach was much contracted and its walls greatly thickened and fibrous, especially along the lesser curvature. The mucosa showed many superficial ulcerations along the lesser curvature from the point of stricture extending towards the cardia. On the anterior wall of the stomach, a short distance from the stricture, there was a chronic ulcer the size of a shilling. The mucosa was seamed with interlacing fibrous tracts. The peritoneal covering of the stomach was roughened

by many loose, fibrous adhesions. No other abnormal lesions were found in the abdomen. The author says that while contractions of the stomach resembling this one often result from ulcerations, that so extended a lesion as the one he reports cannot be due to the results of gastric ulcers. He thinks that the interlacing fibrous tracts in the mucosa were probably due to fibroid degeneration of an irritative growth of the connective tissue of the submucous layer, and that this was associated with a general thickening of the gastric walls. He believes that the superficial ulcerations were secondary. He makes no mention of malignancy being present.

CASE III.—*Etude sur la Gastrite Chronique avec sclerose sous-muqueuse hypertrophique et retroperitonite calleuse.* (Victor Hanot and Albert Gambault, *Archive de Physiologie*, 1882.)

A woman, forty-four years old, and an alcoholic, entered Guy's Hospital complaining of abdominal pain and tympanites. Examination showed some ascites. Three weeks later the patient developed a general peritonitis and died.

Post-mortem.—The peritoneum was thickened, the liver was enlarged, and a considerable quantity of free fluid was found in the peritoneal cavity. The stomach was small, hard, and thick, and was described as being like a rubber ball. On section of the stomach it was observed that its walls were very thick. It is stated that they measured one inch in thickness near the pylorus. The microscope showed that the thickening was due to hypertrophic changes in the muscular and submucous coats. These layers were found to be of equal thickness. The submucosa was very resisting, and had a dull, white appearance. Malignant disease was not considered by the reporters of this case.

CASE IV.—A woman, thirty-three years old, had complained of dyspepsia for four or five years. She had been a worker in straw-hat factories, and had the habit of pressing the handle of the iron with her abdominal wall. Her greatest complaint was vomiting. This gradually became more severe, but at intervals of several months she would not vomit at all. During the last two years, however, she vomited several times every day. She complained of severe pain in the epigastrium at times. Examination showed the presence of an egg-sized tumor in the region of the stomach. This was freely movable. The patient died from weakness and lack of nutrition.

Post-mortem.—The stomach was small and would hold only four or five ounces. Its walls were from three-quarters to one and one-half inches in thickness. The tissue of the stomach was moderately firm in consistency and showed no trace of a neoplasm. The mucosa was smooth and atrophic and showed no ulcerations. The tumor mass, felt before death, was situated in the submucous tissue, and microscopically was found to consist of imperfect fibrous tissue and some granulation tissue. There was absolutely no evidences of carcinomatous development. The remainder of the submucosa of the stomach showed a great increase of the fibrous elements, but no signs of carcinoma were found.

CASE V.—A man, forty-five years old, showed marked cachexia when first seen. His abdomen was distended and some ascites present. He

said that he had been sick one year, complaining of cough, bleeding from the lungs, pains in the stomach, and loss of appetite. He gave no history of having vomited.

Post-mortem.—The stomach was diminished in size and was adherent along its lesser curvature. The gastric wall was thickened, being from one to two centimetres in thickness near the pylorus. The stomach tissue was indurated and firm. The mucosa was smooth, pale, and indurated. Microscopically, there was found hypertrophy of the muscularis and great fibrous increase of the submucosa. The mucosa was atrophic and showed considerable loss of glandular structures.

CASE VI.—*Progressive Contraction of the Stomach with Gastric Hypertrophy.* (Dr. Jacobi, *New York Medical Record*, Vol. xvii, 1880.)

A man, sixty-two years of age, formerly addicted to gluttony, said that he had been vomiting continuously for six months. He remarked that he rejected ingesta, in an unaltered condition, fifteen minutes after eating. He was markedly emaciated.

Post-mortem.—The stomach was small and was shrunken to the size of a loop of large intestine. Its walls were much thickened, but in places showed areas of marked attenuation. Many small cicatricial areas were found in the mucosa near the cardia.

(No report is given of further examination in this case.)

CASE VII.—*Caso di notevole cirrosi dello stomaco in soggetto non bevitate.* (A marked case of gastric cirrhosis in a non-drinking subject.)

Bolletinis d. sezione d. cultori d. scienze mediche n. r. Accademia d. fisiocritici di siena, Vol. v, 1887. Reported by C. Bernabei.

A man, sixty-three years of age, experienced great difficulty in swallowing solids. He vomited frequently, experienced great pain in the abdomen at times, and suffered from constipation. He became greatly emaciated, and died one year after the beginning of his illness.

Post-mortem.—The stomach was greatly reduced in size. It would hold about 100 centimetres. The greater curvature measured about twenty-five centimetres, the lesser curvature seven centimetres. The distance from the greater to the lesser curvature was seven centimetres. The anteroposterior diameter of the stomach was seven centimetres. The circumference of the pyloric orifice was seven centimetres; that of the cardiac five centimetres. Nothing is said concerning the microscopic findings in this case.

CASE VIII.—Osler ("Practice of Medicine," page 467) mentions a case of cirrhosis of the stomach studied by himself and Henry. I understand that the report of this case was published in Montreal some years ago, but I am unable to obtain it. Osler makes the following statements: "The greater portion of the lining membrane of the stomach was converted into a perfectly smooth, cuticular structure, showing no trace whatever of glandular elements, with enormous hypertrophy of the muscularis mucosæ, and here and there formation of cysts."

CASE IX.—R. F. C. Leith^a mentions a case of cirrhosis of the stomach in which the involvement was diffuse and carcinoma improbable.

Microscopic examination showed beyond all doubt that the condition was not malignant.

CASE X.—Leith mentions a case observed by Clifford Allbutt¹⁰ that was non-malignant. In this case, Allbutt believed that the cicatricial process had its starting-point in the healing of gastric ulcers. The stomach was much contracted, but was diffusely involved. The patient ultimately died of pyloric stenosis.

PATHOLOGY.—The Size and Shape of the Stomach.—In all of the cases the stomach was much diminished in size. In one case, that reported by Bernabei,¹⁶ its capacity was estimated at 100 cubic centimetres. In all of the cases but one the stomach had retained its normal shape.

Thickness of the Stomach.—The walls of the stomach were uniformly thickened. In only one case was the thickening irregular. In the case reported by Jacobi,¹⁵ many small areas were present in which the stomach showed marked thinning. In all of the cases, the thickness and induration of the organ was most marked in the region of the pylorus. The organ showed less evidence of involvement in the cardiac region. In all of the cases the entire organ was involved.

Peritoneum.—The covering of the stomach appeared normal in all but two cases. In two cases, reported by Hanot and Gambault,¹⁴ the peritoneum was thickened; and adhesions, and evidences of a chronic inflammation, were present.

Muscular Coats.—The muscularis of the stomach showed abnormal changes only in one case. Hypertrophy of the muscle was present to quite an extreme degree in one case reported by Hanot and Gambault (Case III).

Submucosa.—In all of the cases the submucosa was markedly thickened, indurated, and showed marked increase in the fibrous elements. The muscularis mucosa was in every instance thickened and fibrous.

Mucosa.—In all of the cases the lining of the stomach was smooth, white, firm, atrophic, and indurated. The glandular elements were much altered, and in most instances had nearly disappeared. In one case reported by Turner¹³ the mucosa was not entirely smooth, but was seamed in places.

Relation to Ulceration.—Allbutt states that he is of the opinion that the cicatricial changes observed in his case were the results of gastric ulceration. He does not discuss the subject in detail, neither does he attempt to explain the process. In the case reported by Turner,¹³ a single ulceration was found the size of a shilling. Turner believes that this ulceration was secondary and had nothing to do with the primary cicatricial process.

Relation to Cancer.—From studying these cases, one would believe that cirrhosis of the stomach was not associated with cancer in any way. Many writers do not concede this. The position taken by Bret and Paviot⁹ has been stated. They are of the opinion that these cases are all malignant, but they give no positive proof for their statements. Mathieu¹⁰ believes that there is a close relation between cicatricial changes of the stomach and carcinoma. He says that "Interstitial gastritis with atrophy is commonly associated with carcinoma. Interstitial gastritis and cancer go side by side or follow one another, just as in certain cases of primary cancer of the liver nodular carcinoma and cirrhosis develop simultaneously or successively." Mathieu's statements may be perfectly correct, but he brings no evidence that in certain cases cirrhosis of the stomach may be unassociated with malignant disease. In my mind, there are cases of cirrhosis of the stomach in which the condition is sufficiently severe to terminate the life of the patient, and no carcinomatous involvement be present.

ETIOLOGY.—The Nature of the Condition.—I believe that the ten cases herewith reported are sufficient evidence to warrant us in considering cirrhosis of the stomach as an independent condition not associated with carcinoma. This statement will doubtless be objected to by some. I have no doubt that carcinomatous tissue might be present in some of the specimens that correspond, clinically and anatomically, to cirrhosis of the stomach. Such a case has been reported by Hunt.¹¹ On the other hand, it is just as possible that similar cases to the one reported by Hunt were not malignant at all. The presence of

glandular elements beneath the muscularis mucosa does not in itself mean carcinoma of the stomach. A quotation from Leuk¹⁷ is of interest in this connection: "For an absolutely certain diagnosis of carcinoma from small pieces of stomach mucous membrane, we must prove an atypical epithelial proliferation from the mucosa into the submucosa. Glands in the submucosa even without mitotic figures must not necessarily be the result of carcinomatous proliferation. Accessory Brunner glands in the pylorus, or simply ends of glands that have been cut off by a branch of the hypertrophic muscularis mucosæ, as I have often seen it in complete sections, might simulate a carcinoma."

Age.—The cases occurred in patients who were from thirty to sixty-three years of age. The average age was about fifty. Men and women were about equally affected. The women, as a rule, suffered from the conditions at an earlier age than did the men. We know little, if anything, concerning the etiology of this condition. Brinton⁶ supposed that alcohol was the most prominent factor in the production of cirrhosis of the stomach. The reports of the cases are not in accordance with Brinton's belief. Only one patient (one described by Hanot and Gambault¹⁴) was an alcoholic. Congenital predisposition might be considered of importance in producing the condition. The pathologic changes found in cases of congenital stenosis of the pylorus are similar to those observed in the cases herewith reported. The report of a case of congenital hour-glass stomach in a fœtus, by Sandifort,²⁶ is of interest in this connection.

From the reports of the cases, it is probable that cirrhosis of the stomach, when it does occur, is in the great majority of instances unassociated with other diseased conditions. Cicatricial changes in the liver, spleen, or kidneys were not mentioned in any case. In only two cases was the abdominal peritoneum diseased. In one case, reported by Hanot and Gambault, ascites was present, but the peritoneum showed no evidences of an inflammation. In another case the patient was

supposed to have died from an acute general peritonitis, possibly a terminal infection.

SYMPTOMS.—Onset.—In most cases definite symptoms were preceded by a long-standing dyspepsia. In no case was there present the history of a preceding disease involving the stomach. Symptoms that could be referred to the presence of a gastric ulcer were not complained of by the patient.

Vomiting.—The most distressing symptom was vomiting. It was present in all of the cases but one. It occurred in paroxysms at the beginning of the disease; later, it was complained of every day. In most cases the ingestion of food preceded the vomiting. In two cases the vomiting of normal ingesta was complained of. In no case was hæmatemesis observed.

Pain.—Pain was present in all but one case. It usually preceded the vomiting. In the early stages of the disease it was not severe; later, it was a most distressing symptom. Generally, it was increased by eating. Shooting or radiating pains were not recorded in any case.

Constipation.—This symptom was complained of by only two cases.

Emaciation.—Emaciation and weakness were very prominent in every case. In all of the cases but one, the wasting, anæmia, and weakness were the cause of the patient's death. The marked and rapid wasting might suggest the presence of malignant disease as the cause. When it is remembered, however, that in most of these cases the gastric mucosa had disappeared, and that the opening in the pylorus had been practically closed, it is not surprising that extreme emaciation, anæmia, and weakness were prominent symptoms. A statement made by Rosenheim¹⁸ concerning atrophy of the stomach is of interest: "Atrophic processes in the stomach mucous membrane have a far-reaching influence upon the body economy. They occur more frequently than has been assumed, and not only relatively frequently with carcinoma, but also as a disease of the stomach for itself. They are without doubt im-

portant factors in the development of the so-called essential anæmia, more so than they have up to now been credited with."

Examination.—Physical examination was negative in all but one case. In this instance a movable tumor was found in the region of the stomach, which proved to be a collection of non-malignant tissue doubtless due to trauma.

Examination of the stomach contents, blood, and urine was not recorded in any case. The examinations in the case that I treated have been recorded in the foregoing.

Diagnosis.—It is difficult, or impossible, to diagnose a case of cirrhosis of the stomach. The condition might be suspected in a patient who presented symptoms of benign stenosis of the pylorus with a contracted stomach. I believe that it would be impossible, in any case, to exclude malignancy. The following conditions would point to a cirrhosis of the stomach. (1) Long-standing disease. (2) Absence of vomiting of blood. (3) A contracted stomach. (4) Absence of a tumor on palpation. (5) Absence of glandular or hepatic involvement. (6) Improvement of the patient generally, and relief of the stomach symptoms, for a considerable period of time, when rectal feeding is resorted to.

Treatment.—The treatment of cirrhosis of the stomach is surgical. I am of the opinion that patients suffering from cirrhosis of the stomach do not die until the pylorus has been so nearly closed as to prevent the passage of food from the stomach into the intestines. If the condition is non-malignant, as we have reason to believe from the reports of the cases, and especially in cases in which the gastric mucosa is found to be smooth, firm, and pale when the stomach is opened, gastro-enterostomy should be performed. This operation drains the chronically inflamed stomach and, at the same time, allows the food to pass into the intestines. I shall watch with great interest the results in the case that I have operated upon. Should the condition in the stomach progress, and gradually close the artificial opening, I shall not hesitate to perform a second operation, which will be governed by the conditions found when the abdomen is opened.

BIBLIOGRAPHY.

- ¹ Einhorn. Diseases of the Stomach, p. 165.
- ² Osler. Practice of Medicine, p. 467.
- ³ Hemmeter. Diseases of the Stomach.
- ⁴ Andrew. *Precis. d'anatom. Path.*, Tome i, p. 47.
- ⁵ R. F. C. Leith. *Albert's System of Medicine*, Vol. iii, p. 440.
- ⁶ Cruveilhier. *Anat. Path.*, 1856, Tome iii, p. 599.
- ⁷ Brinton. Diseases of the Stomach, 1864.
- ⁸ Habershon. Diseases of the Stomach, 1869.
- ⁹ Wilks. Transactions of the Pathological Society of London, 1861.
- ⁹ Bret and Paviot. *Revue de Médecine*, May 10, 1894.
- ¹⁰ C. Allbutt, quoted by Leith. *System of Medicine*, p. 467.
- ¹¹ G. B. Hunt. Transactions of the Pathological Society of London, 1897-98.
- ¹² W. B. Hadden. Transactions of the Pathological Society of London, 107, 1891.
- ¹³ F. C. Turner. Transactions of the Pathological Society, 1887.
- ¹⁴ Victor Hanot and Albert Gambault. *Arch. de Physiologie*, 1882.
- ¹⁵ Dr. Jacobi. *New York Medical Record*, Vol. xvii, 1880.
- ¹⁶ C. Bernabei. *Bolletinis d. sezione d. cultori d. scienze mediche n. r. Accademia d. fisiocritici di Siena*, Vol. v, 1887.
- ¹⁷ Leuk. Untersuchungen zur pathologischen Anatomie des Menschlichen Magens, *Zeitsch. f. klin. Med.*, Band xxxvii, p. 296.
- ¹⁸ Rosenheim. Ueber atrophische Processe an Magenschleimhaut, *Berliner klin. Wochenschrift*, 1888, Nos. 51 and 52, pp. 1021 and 1044.
- ¹⁹ Mathieu, A. Eine neue Theorie über die Ursachen mancher Nervenkrankheiten, *Volkman's sammlung Klinischer Vorträge*, No. 106, 1894.
- ²⁰ Sandifort. *Obs. Anat. Path.*, Tome iii, p. 11.
- ²¹ Handfield Jones. *Pathological and Clinical Observations respecting Morbid Conditions of the Stomach*, 1854.